Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Station Paper No. 76 April 1957

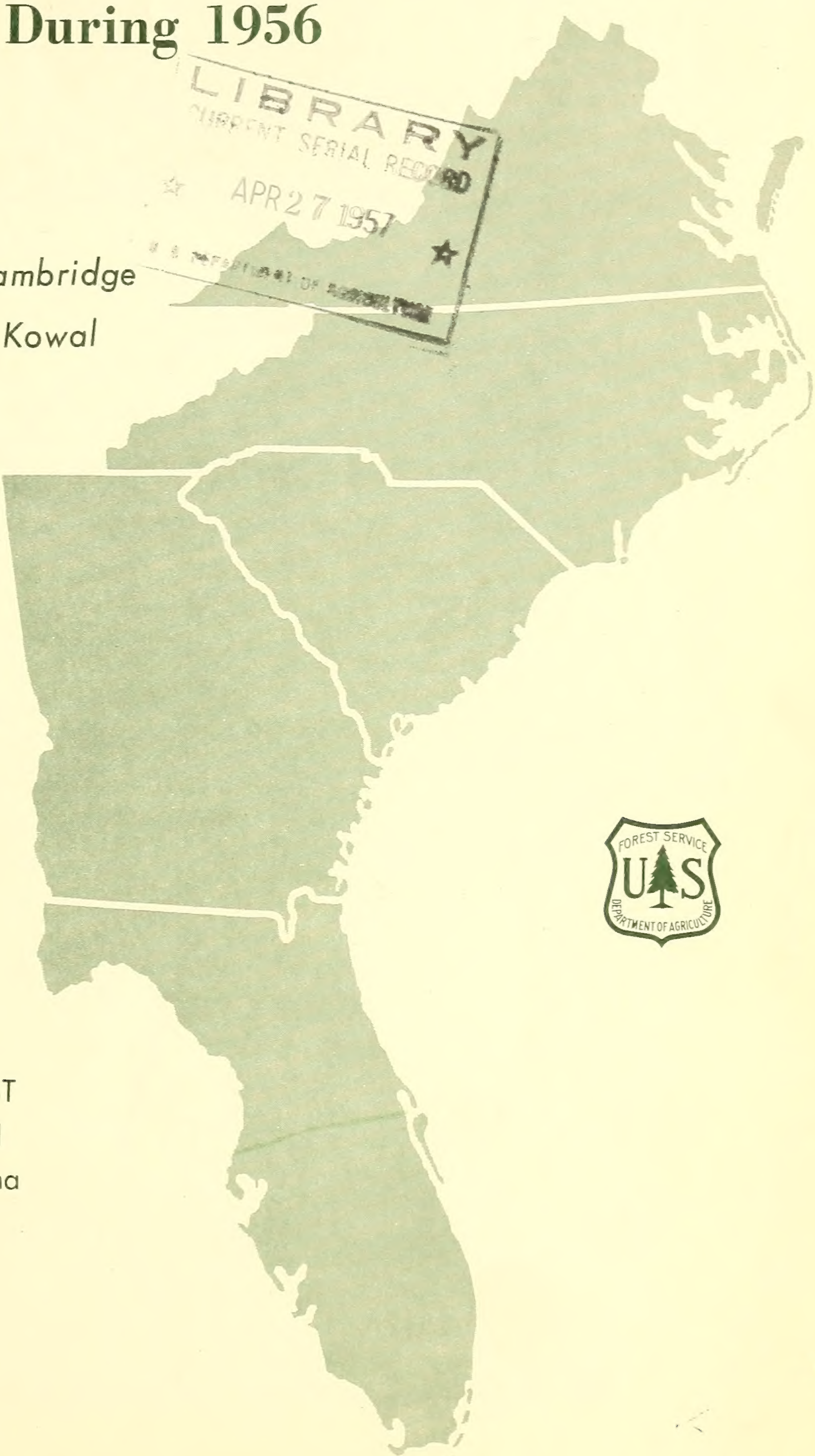
Forest Insect Conditions in the Southeast During 1956

1.9622
S4St2
Cop. 2

LIBRARY
CURRENT SERIAL RECORD
★ APR 27 1957 ★
U. S. DEPARTMENT OF AGRICULTURE

by

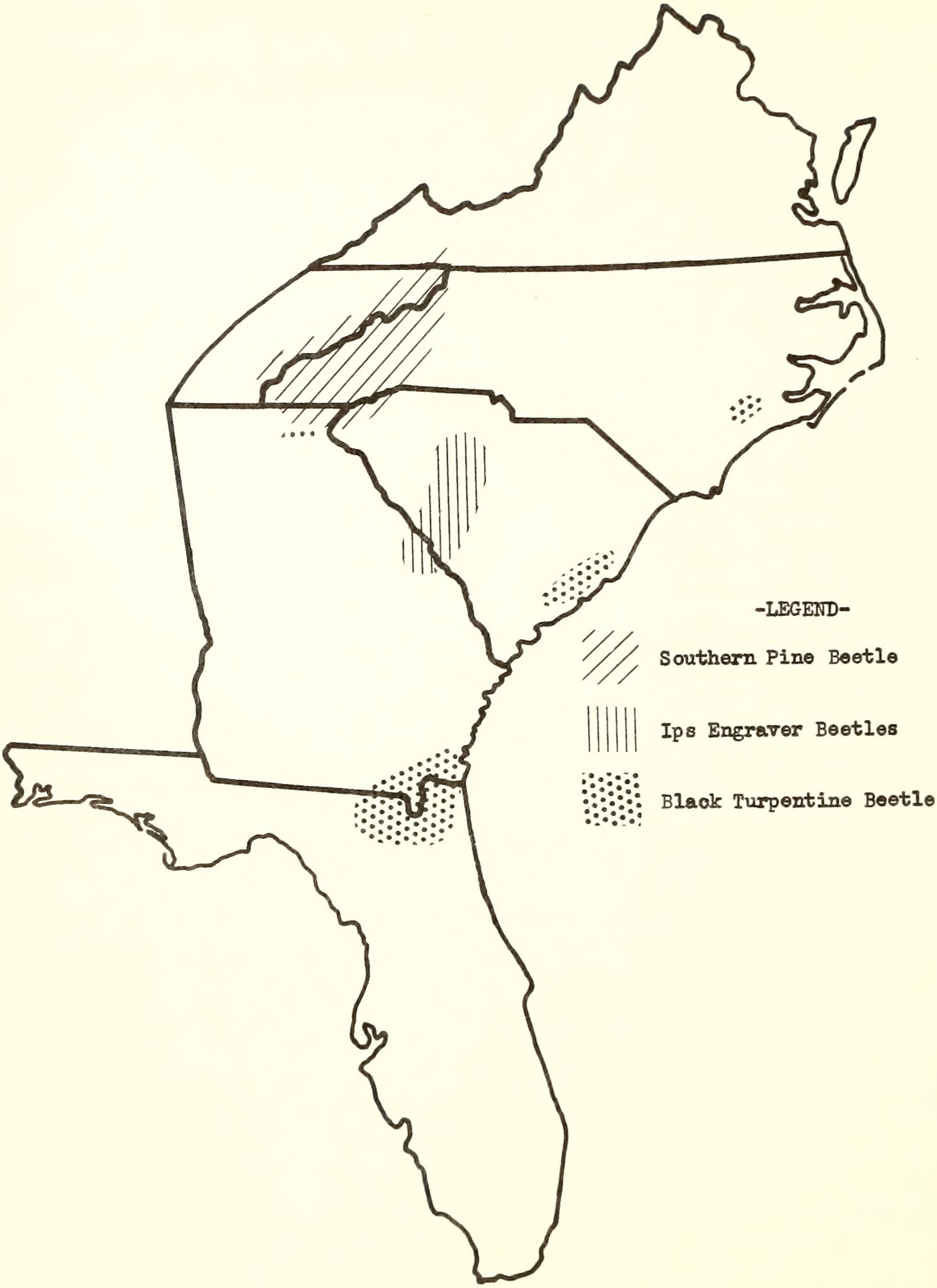
W. F. McCambridge
and R. J. Kowal



SOUTHEASTERN FOREST
EXPERIMENT STATION
Asheville, North Carolina

Joseph F. Pechanec,
Director

U. S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE



Location of known bark beetle outbreaks in the Southeast during 1956

FOREST INSECT CONDITIONS IN THE SOUTHEAST DURING 1956

by

W. F. McCambridge and R. J. Kowal

INTRODUCTION

The southern pine beetle continued as the number-one tree killer, particularly in the Southern Appalachians, though the situation is not as serious as in 1955. Losses by Ips have been much lower than last year but are still considerably above normal; it will be remembered that record losses occurred in late 1954 and early 1955. The black turpentine beetle continued its widespread activities, with serious damage in the naval stores area though less than in 1955. Defoliator activity was more prominent than usual, particularly in hardwood. The snow-white linden moth and the variable oak leaf caterpillar were especially destructive. Less conspicuous insects such as tip moths, pitch feeding moths, and reproduction weevils presented serious problems to forest land managers.

The task of forest insect detection is dependent upon cooperation of all forest managing agencies, and this cooperation improved a great deal in the Southeast during 1956. In the States of Georgia, North Carolina, Tennessee, and Virginia, where forest entomologists or forest specialists have been employed, detection and control on state and private land has shown marked improvement (table 1). The naval stores industry, under the leadership of

Table 1.--Cooperative insect conditions reports received from federal, state, and private sources during 1956

State	Reports [1]	State	Reports [1]
	Number		Number
Virginia	9	Georgia	10
North Carolina	17	Florida	7
South Carolina	2	Tennessee (eastern)	3
		Total	48

[1] Methods of reporting vary somewhat in each state. Infestations on federal lands are generally reported directly to the Southeastern Forest Experiment Station. Those on private lands are largely reported to the entomologist or forester of the State Forester's office; these are summarized periodically and forwarded to the Station unless urgent, in which case an immediate report is made. A scattered number of reports are received by the Station from miscellaneous sources.

turpentine cooperatives and in cooperation with the naval stores conservation program, keeps well abreast of insect conditions and promptly reports and recommends control. Entomologists and foresters in industry and state agencies and numerous private individuals make up an ever-increasing group of cooperators who detect forest insect epidemics with increasing effectiveness. The widespread activities of the U. S. Forest Service through its ranger districts and research centers provide a major source of detection information, as do the Park Service and Indian Service. Entomologists of the Southeastern Station maintain close contact with these units and individuals in order to establish the status of destructive insects, to cooperate in making ground and aerial surveys, and to assist in control programs.

SOUTHERN PINE BEETLE

It is estimated that the southern pine beetle killed in excess of 6 million board-feet of pine timber in the Southeast during 1956. Most of this kill--5-3/4 million board-feet--occurred in the Southern Appalachian Mountains (table 2). Of the latter total, 2¼ million board-feet were salvaged, leaving a net loss of 3½ million. During control operations against this beetle 63,368 trees were treated, 52,768 by federal agencies and 10,600 by the State of North Carolina.

Table 2.--Southern pine beetle timber losses and control during 1956 in the Southern Appalachian Mountains

Area	Pole and sawtimber volume		Trees felled and sprayed
	Killed	Salvaged	
	Thousand board-feet	Thousand board-feet	Number
North Carolina	1, 700	100	28, 700
South Carolina	600	360	7, 500
Georgia	150	--	--
Tennessee	3, 300	1, 750	27, 168
Total	5, 750	2, 210	63, 368

At the end of the year, not all infested trees within control areas had been treated. Some losses may be expected to continue until artificial control measures assisted by natural agents are effective.

Virginia.--The southern pine beetle epidemic in central Virginia passed into the endemic stage during the early part of 1956. In fact, it appears that low winter temperatures early in 1955 were causing a decline in beetle populations during the autumn of that year. The outbreak is credited with causing a loss of 5 million board-feet of Virginia and shortleaf pine since it began in 1952-53.

During the fall of 1956, the southern pine beetle epidemic in northeastern Tennessee extended slightly into Virginia. Table mountain and Virginia pines were killed near Damascus. To date, losses in this area have not been serious nor are they expected to become so.

North Carolina.--The first half of 1956 marked a period of optimism concerning the trend of beetle activity in the western part of the state. Pine losses were low and the beetle was frequently hard to find. In late July, however, the beetle once more became aggressive in many areas and continued so throughout the remainder of the year. The present area of beetle activity extends from Asheville into the southwest corner of the State.

During 1956, the beetle killed an estimated 1.7 million board-feet of Virginia, pitch, and shortleaf pine. Approximately 100,000 board-feet were salvaged with a net loss of 1.6 million board-feet. A total of 28,700 trees were treated with 0.25 percent gamma benzene hexachloride in fuel oils, of which 18,100 were on federal lands and 10,600 on private lands. The latter were treated by the State of North Carolina.

Approximately 50,000 trees have been killed in the Asheville Basin since July 1956. Control efforts were possible in only a small area of the Basin, where 8,000 trees were treated by the State.

South Carolina.--Southern pine beetle activity flared up on the General Pickens Ranger District in the northwestern part of the State in late July. Small scattered patches of beetle-killed trees were widely distributed over the forest in June. By late July these spots had greatly multiplied and enlarged. Control operations were intensified in September, very greatly reducing the outbreak by the close of the year. During 1956, 7,500 Virginia, shortleaf, and pitch pines were sprayed, and 361,000 board-feet of beetle-infested timber were salvaged. Nevertheless, a net loss of over 228,000 board-feet was sustained on the district. This figure includes trees cut and sprayed. Elsewhere in South Carolina the southern pine beetle was not seriously active.

Georgia.--Persistent scattered killing of pines by the beetle has been observed in the northeast corner of Georgia. Complicated land ownership has made control impractical. It is estimated that the beetle has killed 5,000 trees during the year, which represents a loss of 150,000 board-feet.

An outbreak near LaGrange appears to be under complete control. It was checked early in May by Station personnel and salvaged by the owner soon after. Kills up to 15 acres in size were observed and over 400 cords of timber salvaged.

Tennessee.- The beetle remained aggressive in the Appalachian Mountains of eastern Tennessee throughout 1956. Pine losses on both private and federal lands have been extensive. While no volume data are available for losses on private lands, federal losses including losses sustained by the U. S. Forest Service and Park Service reached 2.6 million board-feet during the calendar year. Using such data as a guide, it is estimated that private timber lands suffered a loss of 675,000 board-feet. Of the volume killed on National Forest land, 1-3/4 million board-feet were salvaged. In an effort to reduce losses and bring the beetle in check, 27,168 trees were felled and sprayed on federal land during the year.

PINE ENGRAVER BEETLE

Persistent drought conditions are believed responsible for widely scattered high populations of Ips beetles[1] in the Southeast. The total volume of pine being killed by this beetle is tremendous. It is estimated that mortality due to Ips beetles exceeds by many millions of board-feet the present mortality caused by the southern pine beetle. This mortality occurs as single trees or small groups of trees widely scattered over large areas, so that control is often too expensive to be practical.

Ips beetle losses were most evident during 1956 in central South Carolina and extending into Georgia. High beetle populations also caused widespread losses near the coast of South Carolina; nevertheless, in no areas of the Southeast was the beetle in a prolonged aggressive outbreak status.

Ips beetles built up large populations within badly scorched trees in the 130,000-acre area burned over in north Florida and south Georgia in March 1956. Rapid salvage operations did much to prevent insect losses in adjacent unburned stands. Ecological factors in addition to salvage reduced timber losses to a lower level than had been expected.

BLACK TURPENTINE BEETLE

The turpentine beetle continued to cause timber losses and to be generally troublesome during 1956. Very heavy beetle populations and scattered tree killing occurred near New Bern in eastern North Carolina. It is expected that timber losses will increase if present trends continue.

Turpentine beetles are numerous in logging areas in northern Georgia and control efforts were getting under way at the close of the year. Ground surveys in logging areas on the Chattooga District of the Chattahoochee National Forest revealed an infestation of over 10,000 infested stumps. Infestation rates in the logging areas surveyed ran from 75 to 92 percent of the stumps.

The beetle is entering standing trees, but to date only those trees damaged in logging are in danger of being killed.

Turpentine beetles, frequently in combination with Ips, are also troublesome in central and coastal South Carolina. In coastal Georgia and northern Florida the turpentine beetle continues to be aggressive, and widespread control in the turpentine belt is often practiced as a part of the naval stores operation. On the Osceola National Forest in northern Florida, 24,000 trees and stumps were treated to kill or prevent attack by the beetle. A much greater number of infested turpentine-faced trees were treated during the year on private lands.

---

[1] _Ips avulsus_, _I. grandicollis_, and _I. calligraphus_

VARIABLE OAK LEAF CATERPILLAR

During the summer white oaks throughout eastern Virginia were partially to completely defoliated by the variable oak leaf caterpillar, Heterocampa manteo. Defoliation extended from Delaware to North Carolina. White oaks in stands where this species was predominant were most severely defoliated, but no tree mortality has occurred. Pupae are abundant in the soil under trees heavily defoliated but the past history of this insect indicates that continuance of the outbreak in the same area is doubtful.

SNOW-WHITE LINDEN MOTH

For the second successive year the snow-white linden moth, Ennomos subsignarius, has caused heavy defoliation of hardwoods in northern Georgia. The epidemic expanded from 1,500 acres in 1955 to 50,000 acres this year. Of this total, 40,000 acres were classed as moderate to heavy. The looper defoliated hickory, oak, walnut, and other lesser mountain species, especially along ridges. No tree mortality has been observed to date.

Biological control agents effective in the area were investigated during latter stages of the infestation in 1956. Pupal parasitism was found to be 36 percent. Such parasitism will help to control the insect but is certainly far from sufficient in itself. Disease also appears to be causing larval mortality in some localities; combined natural control may be in the process of bringing the outbreak to an end.

FIR APHID

Chermes nusslini has been killing scattered trees along the Blue Ridge Parkway in northern Virginia for some years. The older trees are being killed and young trees are being deformed. The infestation appears limited to an area within several miles of Skyland. No great number of trees have died each year, but the amount of Fraser fir occurring along this section of the Parkway is also limited. Control in certain high value recreation areas appears necessary to prevent continued losses. Possibilities of applying artificial control measures have been investigated.

PINE PITCH MOTHS

Pitch moths, Dioryctria spp., continue to be a general nuisance and in some instances become serious tree-damaging agents. Dioryctria amatella attacked and killed 70 percent of all growing tips of slash pine in one area of southern Georgia. Trees of pulpwood size and larger were attacked.

Dioryctria is frequently confused with the black turpentine beetle in those instances when the moth attacks either fresh wounds or near turpentine faces. Pitch moth attacks in such cases result in partial girdling and weakening of the trees, creating more favorable host material for the turpentine beetle.

PINE REPRODUCTION WEEVILS

Severe infestations of reproduction weevils have been reported from scattered locations in the Southeast. In the mountain areas, Hylobius pales appears to be far more common than Pachylobius picivorus, which seems to be predominant further South.

NANTUCKET PINE MOTH

The pine moth, Rhyacionia frustrana, continued at the same or increased levels in all the states in the Southeast. Plantations of shortleaf and loblolly pine have been observed with as much as 80 percent of the developing shoots attacked. It is not unusual to find severely infested trees up to 20 feet in height.

FOUR-EYED SPRUCE BARK BEETLE

A severe 10- to 15-acre blowdown of overmature red spruce and Fraser fir occurred on the Blue Ridge Parkway on March 8 in the vicinity of Mt. Mitchell, North Carolina. Attacks by the four-eyed spruce beetle, Polygraphus rufipennis, occurred soon after. Periodic inspections throughout the summer and fall revealed no unusual buildup of this insect that might endanger standing trees.

PINE SAWFLIES

Pine sawflies, Neodiprion spp., were at a relatively low level. Several years ago damage was severe in parts of South Carolina.

Considerable defoliation by pine sawflies was reported from forested areas in the vicinity of Chattanooga, Tennessee. However, specimens were not received to permit identification, and the report was obtained too late to permit collection of the insect. No mortality resulted from this defoliation.

PINE NEEDLE MINER

Activity by a pine needle miner, Exoteleia sp., during early summer marked the third year of infestations on pitch and shortleaf pine in the North Carolina-Tennessee mountain area. While the defoliation apparently has no serious effects on the trees, it causes a discoloration suggesting mortality associated with bark beetles.

TORTRICID MOTH ON LOBLOLLY PINE

Rather severe damage to loblolly pine in a forest nursery in Virginia was caused by *Sparganothis sulphureana* Clem. (Tortricidae) in the spring. The insect webs needles together and chews them extensively. (Considerable malformation by this insect of Scots pine below 2 feet in height has been reported from southern Ontario.)

COLUMBIAN TIMBER BEETLE

Rather severe damage to yellow-poplar occurred in southeast Virginia and near Lenoir, North Carolina. The damage was observed in early June. In North Carolina, infested stands are second-growth poplar ranging from 6 to 18 inches d.b.h. An over-all infestation of 5 to 10 percent of the trees was estimated for the area, although the degree of infestation varies greatly. Two to four attacks per tree were common; 28 attacks were observed on one 14-inch tree. During the initial reconnaissance survey it was learned that some mill operators in the area were taking considerable financial loss in degrade. These operators mentioned price drops of from $105 to $65 per thousand board-feet. More information is needed to determine the causes of this condition and its importance.

ELM LEAF BEETLE

Dipterous parasites of the elm leaf beetle were released during the period July 25 to August 3 in Virginia to combat this defoliator. Releases were made by Beltsville Forest Insect Laboratory in cooperation with other interested parties.

Agriculture--Asheville

* NATIONAL AGRICULTURAL LIBRARY
1022590069